

surveillance program. In the offseason, the coordinator works part time in an administrative role.

Of the above, how many are:

(Please check off all that apply, and list employee name(s) next to each category)

- ☐ Administrative
- ☐ Biologist
- ☐ Educator
- ☐ Entomologist
- ☐ Facilities
- ☐ Information technology
- ☐ Laboratory
- ☐ Operations
- ☐ Public relations
- ☐ Wetland scientist
- ☒ Other (please describe) Program Coordinator acts as administrator and field technician.

For the year of this report, the following were maintained (enter number in the column to the left):

- Modified wetland equipment (list type)
- Larval control equipment (list type)
- ULV sprayers (list type)
- 1 Vehicles

Other (please be specific):

Comments: District has one full sized pickup truck for summer operations. Regular maintenance in 2021.

How many cities and towns are in your service area?* 20

Alphabetical list: Bernardston, Buckland, Chicopee, Deerfield, East Longmeadow, Gill, Granby, Greenfield, Hadley, Heath, Holyoke, Northampton, Palmer, Rowe, Shelburne, Shutesbury, South Hadley, Southampton, Sunderland, and West Springfield

Were there any changes to your service area this year? Yes

Cities/towns added: Buckland, Gill, Shelburne, Sunderland.

Cities/towns removed: NA

***Please attach a map of your service area (or a website link to that map).**

INTEGRATED PEST MANAGEMENT (IPM):

Check off all services that your district/project currently provides to member cities and towns as part of an IPM program (details will be provided in the sections below):

- ☐ Adult mosquito control
- ☒ Adult mosquito surveillance
- ☐ Ditch maintenance
- ☒ Education, Outreach & Public education
- ☐ Larval mosquito control

- ☐ Larval mosquito surveillance
- ☐ Open Marsh Water Management
- ☐ Research
- ☐ Source reduction (tire removals)
- ☐ Other (please list):

Comments: The district was still limited to surveillance and education in 2021. The district is aiming to introduce more services in 2023 with the acquisition of a facility.

LARVAL MOSQUITO CONTROL:

If you have a larval mosquito control program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program:

What months is this program active?

Describe the types of areas where you use this program:

Do you use:

- ☐ Ground application (hand, portable and/or backpack, etc.)
- ☐ Aerial applications
- ☐ Other (please list):

Comments: _____

List all products that you use for larval mosquito control in the table below (leave blank if not applicable):

Product Name	EPA #	Application Rate(s)	Application Method	Targeted life stage	Habitat Type	Total finished product applied
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	

List all products that you use for larval mosquito control in the table below (leave blank if not applicable):

Product Name	EPA #	Application Rate(s)	Application Method	Targeted life stage	Habitat Type	Total finished product applied
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	
				Choose one	<input type="checkbox"/> Catch basins <input type="checkbox"/> Containers <input type="checkbox"/> Wetland <input type="checkbox"/> Other (please list):	

What is your trigger for larviciding operations? (check all that apply)

- ☐ Best professional judgment
☐ Historical records
☐ Larval dip counts – please list trigger for application:
☐ Other (please describe):

Comments: _____

Please attach a map of your service area (or a website link to that map).

ADULT MOSQUITO CONTROL:

If you have a larval mosquito control program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program:

What is the time frame for this program?

Describe the types of areas where you use this program:

Do you use:

- ☐ Aerial applications
☐ Portable applications
☐ Truck applications
☐ Other (please list):

Comments: _____

For each product used, please list the name, EPA #, and application rate(s):

Product Name	EPA #	Application Rate(s)	Application Method	Total finished product applied

Please describe the maximum amounts or frequency used in a particular time frame such as season and areas

What is your trigger for adulticiding operations? (check all that apply)

- ☐ Arbovirus data
☐ Best professional judgment
☐ Complaint calls (Describe trigger for application:)
☐ Landing rates (Describe trigger for application)
☐ Light trap data (Describe trigger for application)

Comments: _____

Please attach a map of your service area (or a website link to that map).

SOURCE REDUCTION (Tire Removals)

If you practice source reduction methods, such as tire removal, please fill out the section below, else skip ahead to the next section.

Please describe your program:

What time frame during the year is this method employed?

Comments: _____

WATER MANAGEMENT/DITCH MAINTENANCE

If you have a water management or ditch maintenance program, please fill out the section below, else skip ahead to the next section.

Please check all that apply:

☐ Inland/freshwater

☐ Saltmarsh

Please describe your program:

For inland/freshwater water management, check off all that apply.

Maintenance Type	Estimate of cumulative length of culverts, ditches, swales, etc. maintained (ft)
<input type="checkbox"/> Culvert cleaning	
<input type="checkbox"/> Hand cleaning	
<input type="checkbox"/> Mechanized cleaning	
<input type="checkbox"/> Stream flow improvement	
<input type="checkbox"/> Other (please list):	

Comments: _____

For saltmarsh ditch maintenance, check off all that apply:

Maintenance Type	Estimate of cumulative length of ditches maintained (ft)
<input type="checkbox"/> Hand cleaning	
<input type="checkbox"/> Mechanized cleaning	
<input type="checkbox"/> Other (please list):	

Comments: _____

What time frame during the year is this method employed?

Comments: _____

Please attach a map of ditch maintenance areas (or a website link to that map).

OPEN MARSH WATER MANAGEMENT

If you have an Open Marsh Water Management program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program:

What months is this program active?

Please give an estimate of total square feet or acreage:

Comments: _____

Please attach a map of OMWM areas (or a website link to that map).

MONITORING (Measures of Efficacy)

Describe monitoring efforts for each of the following:

Aerial Larvicide – wetlands:

Ground ULV Adulticide:

Larvicide – catch basins:

Larvicide-hand/small area

Open Marsh Water Management:

Source Reduction:

Other (please list):

Provide or list standard steps, criterion, or protocols regarding the documentation of efficacy (pre and post data), and resistance testing (if any):

Check the boxes below, indicating if your program has performed any of the following:

Research Project	Details
Bottle assays	
Efficacy testing	
Other:	
Other:	

ADULT MOSQUITO SURVEILLANCE

If you have an adult mosquito surveillance program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program: The purpose of the surveillance program is to monitor for the presence of EEE and West Nile Virus in our member communities. Early detection allows for communities to make informed decisions on how to manage mosquitoes in their community as well as communicate risk to residents.

What months is this program active? June to October

Check off all trap types used this past season by your program:

Trap Type	Canopy? (check box for yes)	Number of traps (leave blank if zero)
<input type="checkbox"/> ABC light trap	<input type="checkbox"/>	
<input type="checkbox"/> ABC light trap w/CO ₂	<input type="checkbox"/>	
<input type="checkbox"/> CDC light trap	<input type="checkbox"/>	
<input checked="" type="checkbox"/> CDC light trap w/CO ₂	<input type="checkbox"/>	1 per week per community Total: 320
<input checked="" type="checkbox"/> Gravid trap		1 per week per community Total: 320
<input type="checkbox"/> Landing rate test		
<input type="checkbox"/> NJ light trap	<input type="checkbox"/>	
<input type="checkbox"/> NJ light trap w/CO ₂	<input type="checkbox"/>	
<input type="checkbox"/> Ovitrap		
<input type="checkbox"/> Resting box		
<input type="checkbox"/> Other (please describe):		
<input type="checkbox"/> Other (please describe):		
<input type="checkbox"/> Other (please describe):		

Do you maintain long-term trap sites in any of your areas? Yes

If yes, how many:

Approximately 40 long term sites - each community has at least two long term recurring trap locations.

Please check off the species of concern in your service area:

- | | |
|---|---|
| <input checked="" type="checkbox"/> <i>Ae. albopictus</i> | <input type="checkbox"/> <i>Oc. abserratus</i> |
| <input type="checkbox"/> <i>Ae. cinereus</i> | <input checked="" type="checkbox"/> <i>Oc. canadensis</i> |
| <input checked="" type="checkbox"/> <i>Ae. vexans</i> | <input type="checkbox"/> <i>Oc. cantator</i> |
| <input type="checkbox"/> <i>An. punctipennis</i> | <input type="checkbox"/> <i>Oc. j. japonicus</i> |
| <input type="checkbox"/> <i>An. quadrimaculatus</i> | <input type="checkbox"/> <i>Oc. sollicitans</i> |
| <input checked="" type="checkbox"/> <i>Cq. perturbans</i> | <input type="checkbox"/> <i>Oc. taeniorhynchus</i> |
| <input checked="" type="checkbox"/> <i>Cx. pipiens</i> | <input type="checkbox"/> <i>Oc. triseriatus</i> |
| <input checked="" type="checkbox"/> <i>Cx. restuans</i> | <input type="checkbox"/> <i>Oc. trivittatus</i> |
| <input checked="" type="checkbox"/> <i>Cx. salinarius</i> | <input type="checkbox"/> <i>Ps. ferox</i> |
| <input checked="" type="checkbox"/> <i>Cs. melanura</i> | <input type="checkbox"/> <i>Ur. sapphirina</i> |
| <input type="checkbox"/> <i>Cs. morsitans</i> | |
| <input type="checkbox"/> Others (please list): | |

Number of adult mosquitoes collected this season (whether submitted to DPH or not): 8,034 submitted, approximately 10,000 total

Number of adult mosquito pools collected this season (submitted and unsubmitted): 369

Number of ovitrap collections this season, if any:

Any other trap collections of note (please describe):

Do you participate in the MDPH Arboviral Surveillance program? Yes

Total number of adult mosquito pools submitted to DPH this past season: 369

How many pools do you submit weekly on average? 23

Number of traps in your service area **placed by MDPH**: MDPH trapped in all nonmember towns in 2021 - 2 traps per week

Were these long-term trap sites or supplemental trapping sites? both

Which arboviruses were found in your area during the previous mosquito season? Enter the number of pools/cases below:

Arbovirus	Positive Mosquito Pools	Equine Cases	Human Cases
<input type="checkbox"/> Eastern Equine Encephalitis (EEE)			
<input checked="" type="checkbox"/> West Nile Virus (WNV)	16 pools	0	0
<input type="checkbox"/> Other (please list):			

Comments: 16 positive pools were collected in 2021 in the Pioneer Valley - Some positive pools were collected by MDPH for surveillance in nonmember communities. There were no confirmed human or animal cases of WNV in the Pioneer Valley in 2021. No EEE was detected in 2021.

For each arbovirus listed below, please list the risk levels in your project area at both the start and end of the season (if more than one, please list all):

Arbovirus	Start of Season	End of Season
EEE	Remote, Low, and Moderate	Remote
WNV	Low	Low and Moderate

Comments: Moderate risk for WNV transmission existed in the Springfield metropolitan area based on WNV cases and positive pools. The rest of service area remained low risk. EEE risk carried over in Franklin County from 2020 but the risk was reduced to remote by the end of the season due to no EEE detection.

EDUCATION, OUTREACH & PUBLIC RELATIONS

If you have an education/outreach program, please fill out the section below, else skip ahead to the next section.

Describe the purpose of this program: The district regularly provides educational talks and literature to district members as well as prospective members upon request. The purpose of the program is to keep Boards of Health informed to properly convey information on mosquito

borne disease. The district provides pamphlets and presentations for BOHs and interested members of the public upon request.

What time frame during the year is this method employed? Year round

Check off all education/outreach methods that were performed by your program this year:

- ☒ Development/distribution of brochures, handouts, etc.
- ☐ Door-to-door canvassing (door hangers, speaking to property owners, etc.)
- ☐ Facebook page, Twitter, or other social media
- ☐ Mailings (Describe target audience(s):)
- ☐ Media outreach (interviews for print or online media sources, press releases, etc.)
- ☒ Presentations at meetings
- ☐ School-based programs, science fairs, etc.
- ☐ Tabling at events (local events, annual meetings, etc.)
- ☒ Website
- ☐ Other (please describe):

Estimate the audience reached this year using the education/outreach methods above: 10-15 Boards of Health

Comments: The PVMCD engages with BOHs on a regularly basis to discuss district surveillance as well as advice on potential mosquito control solutions in the case of outbreaks. Particularly, the new aerial spray exclusion process engages the district with members for advice on the opt-out process. The district always advises in favor of the most robust IMM strategy.

List your program's top 3 education/outreach activities for this year:

1. Presentations via Zoom to BOHs and members of the public
2. Q & A Sessions for BOHs and Interested members of the public
3. Literature development on mosquito control methods and pesticide risks

Were you involved in any collaborations with the following partners this year? Provide details below, including a list of technical reports, white/grey papers, journal publications, trade magazine articles, etc:

- ☐ Academia
- ☐ Another mosquito control district/project
- ☐ Another state agency (DCR, DPH, etc.)
- ☐ Environmental groups
- ☐ Industry

List any training/education your staff received this year: NA

Please list the certifications and degrees held by your staff: Commerical Pesticide Applicator License is held by the Program Coordinator.

Comments: The district looks forward to expanding into more outreach related events as capacity grows. District has been mainly limited to online meetings due to the ongoing pandemic.

INFORMATION TECHNOLOGY (IT)

Does your program use (check all that apply):

- ☐ Aerial Photography
- ☐ Databases
- ☐ Dataloggers (monitoring for temperature, etc.)
- ☐ GIS mapping (Describe:)
- ☐ GPS equipment
- ☐ Smartphones
- ☐ Tablets/Toughbooks
- ☐ Other (please describe):

Describe any changes/enhancements in IT from the previous year:

Describe any difficulties your program had with IT software/equipment this year:

Comments: _____

REVENUES & EXPENDITURES

Please enter your approved budgets for the current, previous, and future fiscal years.

	Date of Fiscal Year	Approved Budget	Notes
Previous	FY21	\$55,000	
Current	FY22	\$97,000	
Future	FY23	\$97,000	

List each member municipality, along with the corresponding (cherry sheet) funding assessment dollar amount, for the current fiscal year (or provide a web link to this information):

- Bernardston - \$3,000
- Buckland - \$5,000
- Chicopee - \$5,000
- Deerfield - \$5,000
- East Longmeadow - \$5,000
- Gill - \$3,000
- Granby - \$5,000
- Greenfield - \$5,000
- Hadley - \$5,000
- Heath - \$1,000
- Holyoke - \$5,000
- Northampton - \$5,000
- Palmer - \$5,000

- Rowe - \$5,000
- Shelburne - \$5,000
- Shutesbury - \$5,000
- South Hadley - \$5,000
- Southampton - \$5,000
- Sunderland - \$3,000
- West Springfield - \$5,000

Comments: Amounts assessed are voluntary contributions. Membership fees cover the cost of surveillance. Towns contributing \$3000 per fiscal year receive one weekly trap rather than two.

SERVICE REQUESTS

How many service requests did you receive this season?

How many were for larviciding?

How many were for adulticiding?

Was this an increase or decrease over last season? Choose one

Comments:

EXCLUSIONS

How many exclusion requests did you receive this season?

Was this an increase or decrease over last season? Choose one

Do you have large areas of pesticide exclusion, such as estimated or priority habitats?
Choose one

If yes, please explain, and attach maps or a web link if possible.

SPECIAL PROJECTS

Did your program perform any of the following special projects? Check all that apply.

- ☐ Inspectional services (inspections at sewage treatment facilities, review of subdivision plans, etc.)

Describe:

- ☐ Work with DPW departments or other local or state officials to address stormwater systems, clogged culverts, or other areas identified as man-made mosquito problem areas

Describe:

- ☐ Work with groups as described above on long term solutions?
Describe:
- ☐ Conduct or participate in any cooperative research or restoration projects?
Describe:
- ☒ Participate in any state/regional/national workgroups or panels, or attend any meeting pertaining to the above?
Describe: Program coordinator continued regular attendance at Massachusetts Mosquito Task Force Meetings.
- ☐ Work on any biological control projects, such as enhancement of habitat for native predators, release of predatory fish or invertebrates, etc.?
Describe:

CHILDREN AND FAMILIES PROTECTION ACT (CFPA)

Is your program impacted by the CFPA? No

If yes, please explain:

If you have data on compliance rates with the CFPA within your program area, please list here:

Describe any difficulties you have had with the implementation of your program due to the CFPA, please elaborate here:

Comments:

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT PROGRAM

Did your program report any adverse incidents during this reporting period? No

If yes, please list any corrective actions here: _____

GENERAL COMMENTS

Please add any comments here for topics not covered elsewhere in this report: The district continued to grow in membership in 2021 as demand for mosquito control in the Pioneer Valley increases. The district is aiming for the acquisition of a facility with a recently acquired earmark through the American Rescue Plan. The facility is ideally projected to open in winter 2023.